

PERAC ACTUARIAL VALUATION REPORT

Athol Contributory Retirement System

January 1, 2002

TABLE OF CONTENTS

Section	Page
1. Introduction & Certification	1
2. Executive Summary	
A. Costs under Current Valuation	2
B. Comparison with Prior Valuation	3
C. Gain/Loss Analysis and Plan Funding Schedule	5
3. Summary of Valuation Results	6
4. Appropriation Developments	
A. Derivation of Appropriation	7
B. Current Funding Schedule	8
5. GASB Statement No. 25: Actuarial Information	9
6. Plan Assets	
A. Breakdown of Assets by Investment Type	10
B. Breakdown of Assets by Fund	10
C. Market Value of Assets	10
D. Actuarial Value of Assets	10
7. Information on System Membership	
A. Active Members	11
B. Retirees and Survivors	13
8. Valuation Cost Methods	
A. Actuarial Cost Method	15
B. Asset Valuation Method	15
9. Actuarial Assumptions	16
10. Summary of Plan Provisions	19
11. Glossary of Terms	25

1. INTRODUCTION & CERTIFICATION

This report presents the results of the actuarial valuation of the Athol Contributory Retirement System. The valuation was performed as of January 1, 2002 pursuant to Chapter 32 of the General Laws of the Commonwealth of Massachusetts.

This valuation was based on member data as of December 31, 2001, which was supplied by the retirement board. Such tests as we deemed necessary were performed on the data to ensure accuracy. Asset information as of December 31, 2001 was provided in the Annual Statement for the Financial Condition as submitted to this office in accordance with G.L. c. 32, ss. 20(5)(h), 23(1)(c) and 23(2)(e). Both the membership data and financial information were reviewed for reasonableness, but were not audited by us.

In our opinion, the actuarial assumptions used in this report are reasonable, are related to plan experience and expectations, and represent our best estimate of anticipated experience under the system. We believe this report represents an accurate appraisal of the actuarial status of the system performed in accordance with generally accepted actuarial principles and practices relating to pension plans.

Respectfully submitted,
Public Employee Retirement Administration Commission

James R. Lamenzo
Member of the American Academy of Actuaries
Associate of the Society of Actuaries
Enrolled Actuary Number 02-4709

Joseph E. Connarton
Executive Director

December 31, 2002

2. EXECUTIVE SUMMARY

PART A | COSTS UNDER CURRENT VALUATION

The results of the January 1, 2002 actuarial valuation are as follows:

Total Normal Cost	\$911,869
Expected Employee Contributions	<u>478,362</u>
Net Normal Cost	<u>\$433,507</u>

Total Actuarial Liability	\$22,651,524
Assets	<u>12,302,987</u>
Unfunded Actuarial Liability	<u>\$10,348,537</u>

The Board recently adopted a funding schedule effective in FY03. The appropriation for FY03 under this schedule is shown below.

Current Funding Schedule for the Fiscal Year Beginning July 1, 2002

	Dollar Amount	Percent of Payroll
Normal Cost (adjusted for timing)	\$469,271	7.7%
Amortization of Unfunded Actuarial Liability (25 year, 4.5% increasing)	<u>\$598,143</u>	9.9%
Total	\$1,067,414	17.6%

FY03 appropriation maintained at same level as prior schedule
Appropriation payments assumed to be made January 1 each fiscal year.

2. EXECUTIVE SUMMARY *(continued)*

PART B | COMPARISON WITH PRIOR VALUATION

The last full valuation was performed by PERAC as of January 1, 2000. Our recently completed experience study forms the basis for the actuarial assumptions used in this valuation. Below we have shown the comparison between the valuations as of January 1, 2000 and January 1, 2002.

	PERAC 1/1/02	PERAC 1/1/00	Increase (Decrease)	Increase (Decrease)
Total Normal Cost	\$911,869	\$824,916	\$86,953	10.5%
Expected Employee Contributions	<u>478,362</u>	<u>421,783</u>	<u>56,579</u>	13.4%
Net Normal Cost	<u>\$433,507</u>	<u>\$403,133</u>	<u>\$30,374</u>	7.5%
Actuarial Liability				
Actives	\$12,605,343	\$11,105,482	1,499,861	13.5%
Retirees and Inactives	<u>10,046,181</u>	<u>9,034,378</u>	<u>1,011,803</u>	11.2%
Total	\$22,651,524	\$20,139,860	\$2,511,664	12.5%
Assets	<u>12,302,987</u>	<u>11,294,345</u>	<u>1,008,642</u>	8.9%
Unfunded Actuarial	<u>\$10,348,537</u>	<u>\$8,845,515</u>	<u>\$1,503,022</u>	17.0%
Funded Ratio	54.3%	56.1%	(1.8%)	

2. EXECUTIVE SUMMARY *(continued)*

PART B | COMPARISON WITH PRIOR VALUATION *(continued)*

Actives	PERAC 1/1/02	PERAC 1/1/00	% Difference
Number	266	256	3.9%
Total Payroll	\$6,071,955	\$5,435,154	11.7%
Average Salary	\$22,827	\$21,231	7.5%
Average Age	44.5	42.9	3.7%
Average Service	8.9	8.5	4.7%

Retirees and Survivors	PERAC 1/1/02	PERAC 1/1/00	% Difference
Number	129	129	0.0%
Total Benefits*	\$1,085,873	\$901,116	20.5%
Average Benefits*	\$8,418	\$6,985	20.5%
Average Age	73.4	73.5	(0.1%)

**excluding State reimbursed COLA*

2. EXECUTIVE SUMMARY *(continued)*

PART C | GAIN/LOSS ANALYSIS AND PLAN FUNDING SCHEDULE

Since the last valuation, plan experience in aggregate was less favorable than assumed. There was an actuarial loss on plan assets since the actual rate of return was less than the 8.25% annual assumed rate over the 2-year period. The rates of return for 2000 and 2001 were 5.16% and (1.9)% respectively. There was an asset loss on a market value basis of approximately \$1.6 million over the 2-year period.

There was also a loss on plan liabilities (before taking into account the change in actuarial assumptions) primarily due to salary increases for continuing members being greater than expected. There was an increase in normal cost due to an increase in the number of active members, and therefore a corresponding increase in total payroll.

Earlier this year we released our Local Experience Study Analysis of local retirement systems. The study analyzed the actual experience over the last four years with respect to retirement, disability, turnover (withdrawal), mortality, and salary increases for approximately 30 systems. As part of that study we revised the actuarial assumptions with respect to retirement, disability, turnover, mortality rates, and the salary scale. The proposed changes are based on both the actual past and anticipated future experience. Changes to the disability, turnover, and salary increase assumptions decreased total plan cost. Changes to retirement rates and using a more current mortality table increased total plan cost. Overall, the revised assumptions produce a total plan cost less than under the prior assumptions.

The funding schedule presented in this report was recently adopted by the board. The schedule maintains the same fiscal year 2003 appropriation as the prior schedule. Beginning in fiscal year 2004, the schedule amortizes the remaining unfunded actuarial liability through 2028 with payments increasing 4.5% each year.

The Town and Regional School District adopted the Early Retirement Incentive (ERI). An appropriation for the cost of the ERI will likely begin in FY05, although it could begin in FY04 if that is the Board's preference. The cost of the ERI is not included in the funding schedule adopted by the Board. We recently discussed the cost of the program and funding alternatives with the Board. Our full report will be released in the next few months.

We are available to work with you in determining alternative funding schedules at your request.

3. SUMMARY OF VALUATION RESULTS

A. Number of Members on Current Valuation Date	
Active Members	266
Retired Members and Survivors	<u>129</u>
Total	395
B. Total Regular Compensation of Active Members	\$6,071,955
C. Normal Cost	
Superannuation	\$610,479
Death	65,155
Disability	143,608
Termination	<u>92,627</u>
Total Normal Cost	\$911,869
Expected Employee Contributions	<u>478,362</u>
Net Employer Normal Cost	\$433,507
D. Actuarial Liability	
Active	
Superannuation	\$10,955,482
Death	382,685
Disability	832,490
Termination	<u>434,686</u>
Total Active	\$12,605,343
Non-Vested Terminated Members	82,658
Retirees and Survivors	<u>9,963,523</u>
Total Actuarial Liability	\$22,651,524
E. Market Value of Assets	12,302,987
F. Unfunded Actuarial Liability: D – E	\$10,348,537
G. Funded Ratio: E/D	54.3%

4. APPROPRIATION DEVELOPMENT FOR FISCAL YEAR 2003

PART A | DERIVATION OF APPROPRIATION

Cost Under Current Funding Schedule

1. a. Normal Cost as of January 1, 2002	\$433,507
b. For FY03 (adjusted for timing)	\$469,271
c. Estimated Administrative Expenses	\$0
d. Total Employer Normal Cost (b+c)	\$469,271
2. a. Unfunded Actuarial Liability as of January 1, 2002	\$10,348,537
b. FY03 payment (25 year, 4.5% increasing in FY04)	\$598,143
3. Total FY03 Payment*	\$1,067,414

FY03 appropriation maintained at same level as prior schedule
Appropriation payments assumed to be made January 1 each fiscal year.

4. APPROPRIATION DEVELOPMENT FOR FISCAL YEAR 2003 (continued)

PART B | CURRENT FUNDING SCHEDULE

Amortization of Unfunded Liability increasing 4.5% per year until FY2028

Fiscal Year	Normal Cost	Amort. Cost	Total Cost	BOFY Balance
2003	469,271	598,143	1,067,414	10,775,414
2004	495,081	678,824	1,173,906	11,041,570
2005	522,311	709,371	1,231,682	11,245,673
2006	551,038	741,293	1,292,331	11,434,809
2007	581,345	774,651	1,355,996	11,606,309
2008	613,319	809,511	1,422,829	11,757,224
2009	647,051	845,939	1,492,990	11,884,292
2010	682,639	884,006	1,566,645	11,983,912
2011	720,184	923,786	1,643,970	12,052,114
2012	759,795	965,356	1,725,151	12,084,521
2013	801,583	1,008,798	1,810,381	12,076,316
2014	845,670	1,054,193	1,899,864	12,022,202
2015	892,182	1,101,632	1,993,814	11,916,355
2016	941,252	1,151,206	2,092,458	11,752,380
2017	993,021	1,203,010	2,196,031	11,523,258
2018	1,047,637	1,257,145	2,304,782	11,221,293
2019	1,105,257	1,313,717	2,418,974	10,838,047
2020	1,166,046	1,372,834	2,538,880	10,364,279
2021	1,230,179	1,434,612	2,664,791	9,789,868
2022	1,297,839	1,499,169	2,797,008	9,103,743
2023	1,369,220	1,566,632	2,935,852	8,293,792
2024	1,444,527	1,637,130	3,081,657	7,346,775
2025	1,523,976	1,710,801	3,234,777	6,248,222
2026	1,607,795	1,787,787	3,395,582	4,982,329
2027	1,696,223	1,868,237	3,564,461	3,531,838
2028	1,789,516	1,952,308	3,741,824	1,877,912
2029	1,887,939		1,887,939	0

FY03 appropriation maintained at same level as prior schedule
 Appropriation payments assumed to be made January 1 of each fiscal year.
 Normal cost assumed to increase 5.5% per year.

5. GASB STATEMENT NO. 25: ACTUARIAL INFORMATION

In November of 1994, GASB issued Statements No. 25, 26 and 27, relating to Financial Reporting and Accounting for Pension Plans. We have included in this report the actuarial information required by Statement No. 25. The requirements of Statement 25 are effective for periods beginning after June 15, 1996.

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL)* (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Cov. Payroll ((b-a)/c)
1/1/2002	\$12,302,987	\$22,651,524	\$10,348,537	54.3%	\$6,071,955	170.4%
1/1/2000	\$11,294,345	\$20,139,860	\$8,845,515	56.1%	\$5,435,154	162.7%
1/1/1998	\$9,300,199	\$17,086,283	\$7,786,084	54.4%	\$4,944,390	157.5%
1/1/1996	\$7,196,681	\$12,833,202	\$5,636,521	56.1%	\$4,398,789	128.1%
1/1/1993	\$5,569,596	\$10,018,324	\$4,448,728	55.6%	\$3,954,947	112.5%

**excludes State reimbursed COLA*

Notes To Schedules

Additional information as of the latest actuarial valuation follows.

Valuation Date	January 1, 2002
Actuarial Cost Method	Individual entry age normal
Amortization Method	4.5% increasing
Remaining Amortization Period	25 years (FY 2028)
Asset Valuation Method	Market value

Principal Actuarial Assumptions:

Investment Rate of Return	8.25%
Projected Salary Increases	Service based table with ultimate rates of 4.75%, 5.00%, and 5.25% for groups 1, 2, and 4 respectively.

6. PLAN ASSETS

A | BREAKDOWN OF ASSETS BY INVESTMENT TYPE

Cash and Cash Equivalents	\$222,195
Short Term Investments	585,074
Fixed Income Securities (Market Value)	4,159,000
Equities (Market Value)	5,790,113
Pooled International Equity Funds	458,026
Interest Due and Accrued	82,135
Accounts Receivable	1,006,444
Total	\$12,302,987

B | BREAKDOWN OF ASSETS BY FUND

Annuity Savings Fund	\$4,441,597
Annuity Reserve Fund	1,374,056
Military Fund	1,523
Pension Fund	1,627,642
Pension Reserve Fund	<u>4,858,169</u>
Total	\$12,302,987

C | MARKET VALUE OF ASSETS \$12,302,987

D | ACTUARIAL VALUE OF ASSETS \$12,302,987

7. INFORMATION ON SYSTEM MEMBERSHIP

A critical element of an actuarial valuation is accurate and up-to-date membership information. PERAC conducted an extensive review of member data submitted for this valuation.

PART A | ACTIVE MEMBERS

	Actives
Number of Members	266
Average Age	44.5
Average Service	8.9
Average Salary	\$22,827
Average Annuity Savings Fund Balance	\$16,197

Age by Service Distribution of Active Members

Present Age	Years of Service							Total
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
0 - 24	5	1						6
25 - 29	15	2						17
30 - 34	7	6	2					15
35 - 39	31	4	6	3	1			45
40 - 44	24	14	11	6	5			60
45 - 49	12	10	11	7	4	4		48
50 - 54	11	7	9	4	3	3		37
55 - 59	3	5	6	2	2	5		23
60 - 64	1	2	2		2	3	1	11
65+	1	2	1					4
Total	110	53	48	22	17	15	1	266

7. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART A. ACTIVE MEMBERS *(continued)*

Salary by Age Distribution of Active Members

Present Age	Number of Members	Total Salary	Average Salary
0 - 24	6	\$80,013	\$13,336
25 - 29	17	\$326,372	\$19,198
30 - 34	15	\$400,623	\$26,708
35 - 39	45	\$1,071,115	\$23,803
40 - 44	60	\$1,331,406	\$22,190
45 - 49	48	\$1,104,797	\$23,017
50 - 54	37	\$893,157	\$24,139
55 - 59	23	\$464,815	\$20,209
60 - 64	11	\$324,879	\$29,534
65+	4	\$74,778	\$18,694
Total	266	\$6,071,955	\$22,827

7. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART B | RETIREES AND SURVIVORS

	Superannuation	Ordinary Disability	Accidental Disability	Survivors	Total
Number of Members	87	5	7	30	129
Average Age	73.2	52.8	69.2	78.4	73.4
Average Annual Benefit	\$9,228	\$12,174	\$16,982	\$7,007	\$9,246

Benefit by Payment and Retirement Type

	Superannuation	Ordinary Disability	Accidental Disability	Survivors	Total
Total Annuity	\$116,186	\$5,822	\$6,314	\$15,796	\$144,118
Pension (excluding State reimbursed COLA)	\$633,131	\$52,148	\$100,713	\$155,763	\$941,755
State reimbursed COLA	\$53,477	\$2,902	\$11,845	\$38,649	\$106,873
Total	\$802,794	\$60,872	\$118,872	\$210,208	\$1,192,746

7. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART B | RETIREES & SURVIVORS *(continued)*

Benefit by Age Distribution

Present Age	Number of Members	Total Benefits	Average Benefits
40 - 44	2	\$38,117	\$19,059
45 - 49	1	\$7,048	\$7,048
50 - 54	4	\$67,378	\$16,845
55 - 59	6	\$88,752	\$14,792
60 - 64	16	\$226,931	\$14,183
65 - 69	21	\$183,548	\$8,740
70 - 74	22	\$164,277	\$7,467
75 - 79	19	\$142,932	\$7,523
80 - 84	19	\$142,125	\$7,480
85 - 89	9	\$63,791	\$7,088
90+	10	\$67,847	\$6,785
Totals	129	\$1,192,746	\$9,246

8. VALUATION COST METHODS

PART A | ACTUARIAL COST METHOD

The Actuarial Cost Method which was used to determine pension liabilities in this valuation is known as the *Entry Age Normal Cost Method*. Under this method the *Normal Cost* for each active member on the valuation date is determined as the level percent of salary, which, if paid annually from the date the employee first became a member of the retirement system, would fully fund by retirement, death, disability or termination, the projected benefits which the member is expected to receive. The *Actuarial Liability* for each member is determined as the present value as of the valuation date of all projected benefits which the member is expected to receive, minus the present value of future annual Normal Cost payments expected to be made to the fund. Since only active members have a Normal Cost, the Actuarial Liability for inactives, retirees and survivors is simply equal to the present value of all projected benefits. The sum of Normal Cost and Actuarial Liability for each member is equal to the Normal Cost and Actuarial Liability for the Plan. The *Unfunded Actuarial Liability* is the Actuarial Liability less current assets.

The Normal Cost for a member will remain a level percent of salary for each year of membership except for changes in provisions of the Plan or the actuarial assumptions employed in projection of benefits and present value determinations. The Normal Cost for the entire system will also change due to the addition of new members or the retirement, death or termination of members. The Actuarial Liability for a member will increase each year to reflect the additional accrual of Normal Cost. It will also change if the Plan provisions or actuarial assumptions are changed.

Differences each year between the actual experience of the Plan and the experience projected by the actuarial assumptions are reflected by adjustments to the Unfunded Actuarial Liability. An experience difference which increases the Unfunded Actuarial Liability is called an *Actuarial Loss* and one which decreases the Unfunded Actuarial Liability is called an *Actuarial Gain*.

PART B | ASSET VALUATION METHOD

Assets are at market value. Typically most plans in the private sector and many in the public sector use an actuarial value approach that smooths asset gains and losses to reduce the potential volatility in market value and therefore the required appropriation amounts from year to year. We recommend the Board consider this methodology when the next valuation is performed.

9. ACTUARIAL ASSUMPTIONS

INVESTMENT RETURN

8.25% per year

INTEREST RATE CREDITED TO THE ANNUITY SAVINGS FUND

3.5% per year

SALARY INCREASE

Service	Group 1	Group 2	Group 4
0	7.00%	7.00%	8.00%
1	6.50%	6.50%	7.50%
2	6.50%	6.50%	7.00%
3	6.00%	6.00%	6.50%
4	6.00%	6.00%	6.00%
5	5.50%	5.50%	6.00%
6	5.50%	5.50%	5.50%
7	5.00%	5.00%	5.50%
8	5.00%	5.00%	5.25%
9	4.75%	5.00%	5.25%
10+	4.75%	5.00%	5.25%

MORTALITY

RP- 2000 Healthy Annuitant table (gender distinct). This is applicable to both pre-retirement and post-retirement benefits. For disabled members, the mortality rate is assumed to be in accordance with the RP- 2000 Table (gender distinct) set forward 3 years for males. It is assumed that 55% of pre-retirement deaths are job-related for Group 1 and 2 members and 90% are job-related for Group 4 members. For members retired under an Accidental Disability, 40% of deaths are assumed to be from the same cause as the disability.

9. ACTUARIAL ASSUMPTIONS *(continued)*

WITHDRAWAL

Based on analysis of past experience. Annual rates are based on years of service. Sample annual rates for Groups 1 and 2 are shown below. For Group 4 members the rate is 0.015 each year for service up to and including 10 years. No withdrawal is assumed thereafter.

Service	Groups 1 & 2
0	0.150
5	0.076
10	0.054
15	0.033
20	0.020

DISABILITY

Based on an analysis of past experience. It is also assumed that the percentage of job-related disabilities is 55% for Groups 1 & 2 and 90% for Group 4.

Age	Groups 1 & 2	Group 4
20	0.00010	0.0010
30	0.00030	0.0030
40	0.00101	0.0030
50	0.00192	0.0125
60	0.00280	0.0085

9. ACTUARIAL ASSUMPTIONS *(continued)*

RETIREMENT (SUPERANNUATION)

Age	Groups 1 & 2		Group 4
	Male	Female	
45-49	0.000	0.000	0.010
50	0.010	0.015	0.020
51	0.010	0.015	0.020
52	0.010	0.020	0.020
53	0.010	0.025	0.050
54	0.020	0.025	0.075
55	0.020	0.055	0.150
56	0.025	0.065	0.100
57	0.025	0.065	0.100
58	0.050	0.065	0.100
59	0.065	0.065	0.150
60	0.120	0.050	0.200
61	0.200	0.130	0.200
62	0.300	0.150	0.250
63	0.250	0.125	0.250
64	0.220	0.180	0.300
65	0.400	0.150	1.000
66	0.250	0.200	1.000
67	0.250	0.200	1.000
68	0.300	0.250	1.000
69	0.300	0.200	1.000
70 and after	1.000	1.000	1.000

10. SUMMARY OF PLAN PROVISIONS

ADMINISTRATION

There are 106 contributory Retirement Systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

PARTICIPATION

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are 3 classes of membership in the Retirement System:

Group 1: General employees, including clerical, administrative, technical and all other employees not otherwise classified.

Group 2: Certain specified hazardous duty positions.

Group 4: Police officers, firefighters, and other specified hazardous positions.

MEMBER CONTRIBUTIONS

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of regular compensation
1975 - 1983:	7% of regular compensation
1984 to 6/30/96:	8% of regular compensation
7/1/96 to present:	9% of regular compensation
1979 to present:	an additional 2% of regular compensation in excess of \$30,000.

RATE OF INTEREST

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least 10 financial institutions.

10. SUMMARY OF PLAN PROVISIONS *(continued)*

RETIREMENT AGE

The mandatory retirement age for some Group 2 and Group 4 employees is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for employees in Group 1.

SUPERANNUATION RETIREMENT

A member is eligible for a superannuation retirement allowance (service retirement) upon meeting the following conditions:

- completion of 20 years of service, or
- attainment of age 55 if hired prior to 1978, or if classified in Group 4, or
- attainment of age 55 with 10 years of service, if hired after 1978, and if classified in Group 1 or 2

AMOUNT OF BENEFIT

A member's annual allowance is determined by multiplying average salary by a benefit rate related to the member's age and job classification at retirement, and the resulting product by his creditable service. The amount determined by the benefit formula cannot exceed 80% of the member's highest three year average salary. For veterans as defined in G.L. c. 32, s. 1, there is an additional benefit of \$15 per year for each year of creditable service, up to a maximum of \$300.

- Salary is defined as gross regular compensation.
- Average Salary is the average annual rate of regular compensation received during the 3 consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.
- The Benefit Rate varies with the member's retirement age, but the highest rate of 2.5% applies to Group 1 employees who retire at or after age 65, Group 2 employees who retire at or after age 60, and to Group 4 employees who retire at or after age 55. A .1% reduction is applied for each year of age under the maximum age for the member's group. For Group 2 employees who terminate from service under age 55, the benefit rate for a Group 1 employee shall be used.

10. SUMMARY OF PLAN PROVISIONS *(continued)*

DEFERRED VESTED BENEFIT

A participant who has completed 10 or more years of creditable service is eligible for a deferred vested retirement benefit. Elected officials and others who were hired prior to 1978 may be vested after 6 years in accordance with G.L. c. 32, s. 10.

The participant's accrued benefit is payable commencing at age 55, or the completion of 20 years, or may be deferred until later at the participant's option.

WITHDRAWAL OF CONTRIBUTIONS

Member contributions may be withdrawn upon termination of employment. Employees who first become members on or after January 1, 1984, may receive only limited interest on their contributions if they voluntarily terminate their service. Those who leave service with less than 5 years receive no interest; those who leave service with greater than 5 but less than 10 years receive 50% of the interest credited.

DISABILITY RETIREMENT

The Massachusetts Retirement Plan provides 2 types of disability retirement benefits:

ORDINARY DISABILITY

Eligibility: Non-veterans who become totally and permanently disabled by reason of a non-job related condition with at least 10 years of creditable service (or 15 years creditable service in systems in which the local option contained in G.L. c. 32, s.6(1) has not been adopted).

Veterans with ten years of creditable service who become totally and permanently disabled by reason of a non-job related condition prior to reaching "maximum age".

Retirement Allowance: Equal to the accrued superannuation retirement benefit as if the member was age 55. If the member is a veteran, the benefit is 50% of the member's final rate of salary during the preceding 12 months, plus an annuity based upon accumulated member contributions plus credited interest. If the member is over age 55, he or she will receive not less than the superannuation allowance to which he or she is entitled.

10. SUMMARY OF PLAN PROVISIONS *(continued)*

ACCIDENTAL DISABILITY

Eligibility: Applies to members who become permanently and totally unable to perform the essential duties of the position as a result of a personal injury sustained or hazard undergone while in the performance of duties. There are no minimum age or service requirements.

Retirement Allowance: 72% of salary plus an annuity based on accumulated member contributions, with interest. This amount is not to exceed 100% of pay. For those who became members in service after January 1, 1988 or who have not been members in service continually since that date, the amount is limited to 75% of pay. There is an additional pension of \$559.44 per year (or \$312.00 per year in systems in which the local option contained in G.L. c. 32, s.7(2)(a)(iii) has not been adopted), per child who is under 18 at the time of the member's retirement, with no age limitation if the child is mentally or physically incapacitated from earning. The additional pension may continue up to age 21 for any child who is a full time student at an accredited educational institution.

ACCIDENTAL DEATH

Eligibility: Applies to members who die as a result of a work-related injury or if the member was retired for accidental disability and the death was the natural and proximate result of the injury or hazard undergone on account of which such member was retired.

Allowance: An immediate payment to a named beneficiary equal to the accumulated deductions at the time of death, plus a pension equal to 72% of current salary and payable to the surviving spouse, dependent children or the dependent parent, plus a supplement of \$312 per year, per child, payable to the spouse or legal guardian until all dependent children reach age 18 or 21 if a full time student, unless mentally or physically incapacitated.

The surviving spouse of a member of a police or fire department or any corrections officer who, under specific and limited circumstances detailed in the statute, suffers an accident and is killed or sustains injuries resulting in his death, may receive a pension equal to the maximum salary for the position held by the member upon his death.

In addition, an eligible family member may receive a one time payment of \$100,000.00 from the State Retirement Board.

10. SUMMARY OF PLAN PROVISIONS *(continued)*

DEATH AFTER ACCIDENTAL DISABILITY RETIREMENT

Effective November 7, 1996, Accidental Disability retirees were allowed to select Option C at retirement and provide a benefit for an eligible survivor. For Accidental Disability retirees prior to November 7, 1996, who could not select Option C, if the member's death is from a cause unrelated to the condition for which the member received accidental disability benefits, a surviving spouse will receive an annual allowance of \$6,000.

DEATH IN ACTIVE SERVICE

Allowance: An immediate allowance equal to that which would have been payable had the member retired and elected Option C on the day before his or her death. For death occurring prior to the member's superannuation retirement age, the age 55 benefit rate is used. The minimum annual allowance payable to the surviving spouse of a member in service who dies with at least two years of creditable service is \$3,000, provided that the member and the spouse were married for at least one year and living together on the member's date of death.

The surviving spouse of such a member in service receives an additional allowance equal to the sum of \$1,440 per year for the first child and \$1,080 per year for each additional child until all dependent children reach age 18 or 22 if a full time student, unless mentally or physically incapacitated.

COST OF LIVING

If a system has accepted Chapter 17 of the Acts of 1997, and the Retirement Board votes to pay a cost of living increase for that year, the percentage is determined based on the increase in the Consumer Price Index used for indexing Social Security benefits, but cannot exceed 3.0%. Section 51 of Chapter 127 of the Acts of 1999, if accepted, allows boards to grant COLA increases greater than that determined by CPI but not to exceed 3.0%. The first \$12,000 of a retiree's total allowance is subject to a cost-of-living adjustment. The total Cost-of-Living adjustment for periods from 1981 through 1996 is paid for by the Commonwealth of Massachusetts.

10. SUMMARY OF PLAN PROVISIONS *(continued)*

METHODS OF PAYMENT

A member may elect to receive his or her retirement allowance in one of 3 forms of payment.

Option A: Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the member's death.

Option B: A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided, however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.

Option C: A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, 2/3 of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who remains unmarried for a member whose retirement becomes effective on or after February 2, 1992, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up") based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

ALLOCATION OF PENSION COSTS

If a member's total creditable service was partly earned by employment in more than one retirement system, the cost of the "pension portion" is allocated between the different systems pro rata based on the member's service within each retirement system.

11. GLOSSARY OF TERMS

ACTUARIAL ACCRUED LIABILITY

That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

ACTUARIAL ASSUMPTIONS

Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the amount and duration of pension benefits, such as: mortality, withdrawal, disablement and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

ACTUARIAL COST METHOD (OR FUNDING METHOD)

A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the Normal Cost and the Actuarial Accrued Liability.

ACTUARIAL GAIN OR LOSS (OR EXPERIENCE GAIN OR LOSS)

A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between two Actuarial Valuation dates.

Note: The effect on the Accrued Liability and/or the Normal Cost resulting from changes in the Actuarial Assumptions, the Actuarial Cost Method or pension plan provisions would be described as such, not as an Actuarial Gain (Loss).

ACTUARIAL PRESENT VALUE

The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

AMORTIZATION PAYMENT

That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

11. GLOSSARY OF TERMS *(continued)*

ANNUAL STATEMENT

The statement submitted to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

ANNUITY RESERVE FUND

The fund into which total accumulated deductions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

ANNUITY SAVINGS FUND

The fund in which employee contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

ASSETS

The value of securities as described in Section VIII.

COST OF BENEFITS

The estimated payment from the pension system for benefits for the fiscal year. This is the minimum amount payable during the first six years of some Funding Schedules.

FUNDING SCHEDULE

The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

GASB

Governmental Accounting Standards Board

11. GLOSSARY OF TERMS *(continued)*

NORMAL COST

Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits, which is to be paid in a single fiscal year. The Employee Normal Cost is the amount of the expected employee contributions for the fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

PENSION FUND

The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

PENSION RESERVE FUND

The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

SPECIAL FUND FOR MILITARY SERVICE CREDIT

The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

UNFUNDED ACCRUED LIABILITY

The excess of the Actuarial Accrued Liability over the Assets.